THERMALLY INSULATING TRANSPARENT FOOD PACKAGE

This invention relates in one embodiment to disposable and/or recyclable containers for retail sale of food at supermarkets, delicatessens, fast food restaurants, and the like.

Cross-Reference To Related Patent Applications

This application claims the benefit of the filing date of U.S. provisional patent application Serial No. 60/422,692, filed October 31, 2002.

Field of the Invention

Containers for packaging, preservation, and display of foods at retail sales locations.

Background of the Invention

Sales of foods packaged as individual servings are common in supermarkets, delicatessens, and fast food restaurants. In many instances, such foods are sold hot, for immediate consumption. It is common to package such foods in plastic foam containers, since the insulative property of such foam keeps the food warm for a prolonged period of time after preparation and packaging. Such containers are typically of unitary construction, having a bottom portion hingeably attached to a top portion. Such containers also are shaped to be nested closely to each other, so that a large number of containers can be shipped in a small volume shipping box.

Such foam containers are generally opaque, and it is therefore not possible to display the food for visual inspection and consideration for purchase. Like many consumer products, a decision to purchase a food is often made based on visual appeal. Thus there is a need for a food package, which has insulative properties, and which is transparent to allow visual inspection.

It is therefore an object of this invention to provide a thermally insulating transparent food package.

Summary of the Invention

In accordance with the present invention, there is provided a food container comprising a polymer foam bottom compartment hingeably attached to a transparent polymer top cover.

Brief Description of the Drawings

The invention will be described by reference to the following drawings, in which like numerals refer to like elements, and in which:

Figure 1 is a top view of a unitary foam food container in a closed state;

Figure 2 is a top view of the unitary foam food container of Figure 1 in an open state;

Figure 3 is a top view of one embodiment of the present invention in an open state;

Figure 4 is a perspective view of the embodiment of Figure 3 in a partially closed state; and

Figure 5 is a detailed view of one embodiment of the hinge attachment of the present invention.

The present invention will be described in connection with a preferred embodiment, however, it will be understood that there is no intent to limit the invention to the embodiment described. On the contrary, the intent is to cover all alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

Description of the Preferred Embodiments

For a general understanding of the present invention, reference is made to the drawings. In the drawings, like reference numerals have been used throughout to designate identical elements. In describing the present invention, a variety of terms are used in the description. As used herein, "transparent" is meant to indicate a material that transmits visible light with sufficient clarity so as to render objects visible by a human when viewed through a layer of material of typical thickness in food packaging (e.g. less than about 1/8 of an inch); or so as to so as to render objects detectable by a machine vision system when viewed through a layer of material of typical thickness in food packaging (e.g. less than about 1/8 of an inch).

Figures 1 and 2 are top views of a unitary foam food container in a closed state, and in an open state, respectively. Referring to Figures 1 and 2, foam container 10 comprises a dish-shaped bottom compartment 12, joined to a similarly dish-shaped top cover 14 by an integral hinge 16. Foam container 10 is a unitary structure, typically made by thermoforming of polystyrene polymer foam. Alternative polymer foams may also be suitable. A detailed description of such suitable polymer foam materials is provided in the applicant's United States patents 6,520,323 6,269,946, 6,269,945, 6,213,294, 6,112,890, 6,210,725, and 6,023,915, the disclosures of which are incorporated herein by reference.

Dish shaped bottom compartment 12 further comprises latch holes 20 and 21, which engage with latching tabs 18 and 19 of top cover 14 when container 10 is closed, as depicted in Figure 1.

It will be apparent from Figure 2 that although the prior art food container provides effective thermal insulation of the heated or chilled food therein, it does not provide a view of

the food for inspection, as foam top cover 14 is opaque. In contrast, the present invention is a food container that provides effective thermal insulation and renders the food visible within the container.

Figure 3 is a top view of a simplified embodiment of the present invention in an open state, and Figure 4 is a perspective view of a simplified embodiment of the present invention in a partially closed state. Referring to Figures 3 and 4, transparent thermally insulating container 30 comprises an opaque dish-shaped bottom 32 joined to a transparent top cover 34 by a hinge 36. Bottom 32 further preferably comprises latch holes 20 and 21, and lip 44 around the perimeter thereof. Top 34 further preferably comprises latching tabs 18 and 19, and lip 46 around the perimeter thereof.

Figure 5 is a detailed view of the hinge attachment of the present invention. Referring to Figure 5, hinge 36 is comprised of a first flap 40 of material, which is integrally and hingeably formed as a part of bottom compartment 32, in much the same manner as hinge 16 of tray 10 of Figure 2. Transparent top cover 34 is suitably joined to hinge flap 40 by adhesive, heat sealing, ultrasonic welding, or any other suitable polymer joining processes known in the art.

In the preferred embodiment, transparent top cover further comprises a second flap 42 that is substantially the same dimensions as first flap 40, and can thus be overlaid on flap 40 prior to the joining therewith. In a more preferred embodiment, bottom 32 and top 34 have similar dished shapes. This preferred embodiment thus has substantially the same capacity, thermal insulative properties, and nestability for shipping as the prior art container 10 of Figure 1, while having the required transparency for the display of the food therein.

In another embodiment (not shown), top 34 has a substantially planar shape. In a further such embodiment, top 34 further comprises a lip around the perimeter thereof, which is substantially perpendicular to the plane of top 34, and which engages and encloses lip 44 of bottom 32.

In the embodiment depicted in Figure 5, heat sealing was used to join hinge flap 40 to top cover 34, thereby fusing flaps 40 and 42 into a substantially unitary structure. Thus transparent top cover 34 is securely and hingeably attached to bottom compartment 32, as shown in the contrasting views of Figures 3 and 4.

In one embodiment of the present invention, the top cover may be of a different material than the bottom cover, with the operative requirement being that the top cover and bottom compartment are joinable to each other. Numerous combinations of different polymers are known to be joinable in such a manner by, e.g., adhesives, heat sealing, ultrasonic welding, or any other suitable polymer joining processes known in the art.

In a more preferred embodiment, the top cover and the bottom compartment are of the same material, as the strongest hinge bond can thus be formed therebetween. Furthermore, the use of identical materials for the top cover and bottom compartment renders the container recyclable as a single object that does not require separation into its individual parts. In one preferred embodiment depicted in Figures 3 – 5, container 30 is made entirely of polystyrene. In othr embodiments, container 30 comprises at least about 80 weight percent polystyrene.

It is, therefore, apparent that there has been provided, in accordance with the present invention, a food container comprising a polymer foam bottom compartment hingeably attached to a transparent polymer top cover. While this invention has been described in conjunction with preferred embodiments thereof, it is evident that many alternatives,

modifications, and variations will be apparent to those skilled in the art. Accordingly, it is intended to embrace all such alternatives, modifications and variations that fall within the spirit and broad scope of the appended claims.